



Pediatric Exanthems

By
MAJ Harry D. McKinnon Jr.
Department of Family Practice
Ft. Belvoir, VA



Headlines In Some Newspaper And Medical Journals

New Study of Obesity Looks for Larger Test Group

New Vaccine May Contain Rabies

Hospitals are Sued by 7 Foot Doctors

Kids Make Nutritious Snacks

Never Withhold Herpes Infection from Loved One

Include your Children when Baking Cookies

Chef Throws His Heart into Helping Feed Needy

Panda Mating Fails; Veterinarian Takes Over



Objectives

- Develop a logical approach to the evaluation of exanthems in a child
- Identify common causes of pediatric exanthems
- Understand treatment of common pediatric exanthems

History



- Detailed history
 - Recent travel
 - Woodland exposure
 - Drug ingestion
 - Ill contacts
 - Medical history

History

- Rash details
 - Site of onset
 - Rate, direction of spread
 - Pruritis
 - Temporal relationship of rash and fever
 - Oral or topical therapies



Physical Examination

- Identify primary lesion and presence of secondary lesions
- Thorough examination essential to accurate diagnosis



Laboratory Data



- Availability dependent
- As clinically appropriate
- Serologic tests not often helpful in acute setting
- Aspirates, scrapings and pustular fluid may be obtained

Rubella (German measles)

- Etiology:
Enveloped RNA
Togavirus
- Transmission via
direct contact, less
commonly air
droplets
- Incubation period:
14 days





Rubella (German measles)

- Transplacental transmission during viremia
- Pre-vaccine 90% acquired prior to age 15
- Late winter – early spring

Rubella (German measles)



- Vaccine
 - Developed 1969
 - Live attenuated (CDC)
- Incidence
 - < 15 yrs: 0.06 per 100,000
 - 15-44 yrs: 0.24 per 100,000

Recommended Childhood and Adolescent Immunization Schedule UNITED STATES • 2005

Age ►	Birth	1 month	2 months	4 months	6 months	12 months	15 months	18 months	24 months	4-6 years	11-12 years	13-18 years
Vaccine ▼												
Hepatitis B ^a	HepB #1											
Diphtheria, Tetanus, Pertussis ^a												
Haemophilus influenzae type b ^a												
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----- Vaccines below red line are for selected populations -----												
Hepatitis A ^a												

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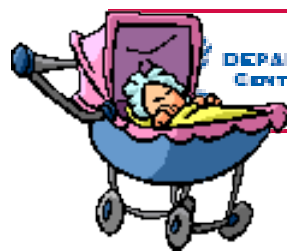
are not contraindicated. Providers should consult the manufacturers' package inserts for detailed recommendations. Clinically significant adverse events that follow immunization should be reported to the Vaccine Adverse Event Reporting System (VAERS). Guidance about how to obtain and complete a VAERS form is available at www.vaers.org or by telephone, 800-822-7967.

Range of recommended ages

Preadolescent assessment

Only if mother HBsAg (-)

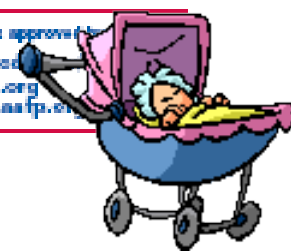
Catch-up immunization

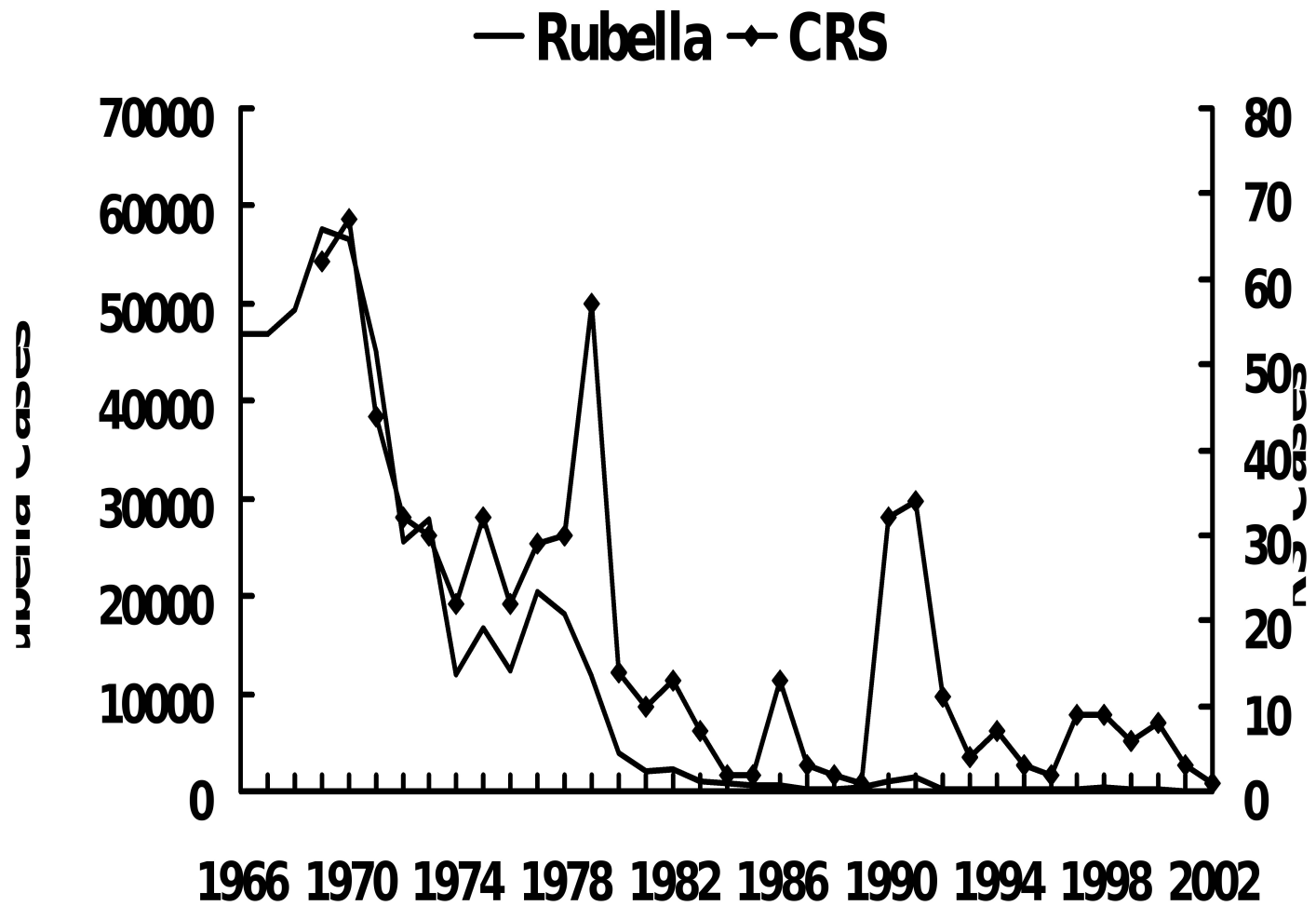


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Advisory Committee on Immunization Practices www.cdc.gov/acip
American Academy of Pediatrics www.aap.org
American Academy of Family Physicians www.aafp.org





cdc.gov



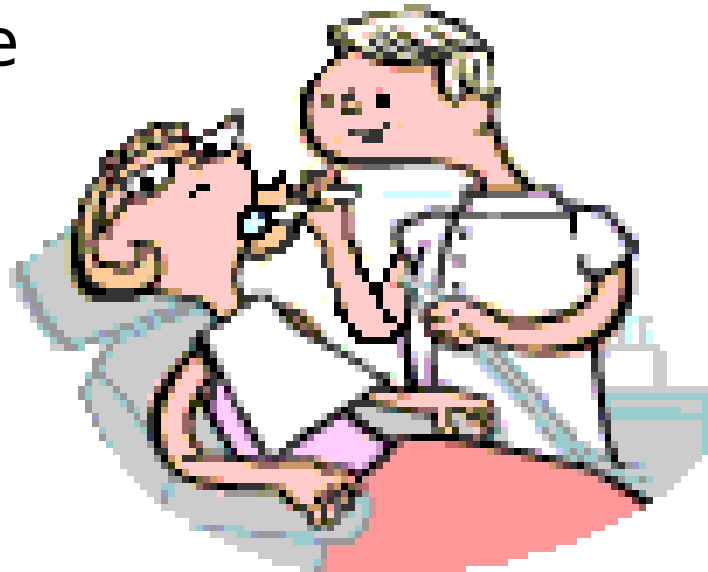
Rubella (German measles)

○ Presentation

- Prodrome uncommon in children
- Pink macules/papules begin on forehead spread inferiorly and to extremities within 1 day
- Fading in reverse order by 3rd day
- Forchheimer's spots – petechiae on soft palate

Rubella (German measles)

- Treatment:
 - Supportive



Rubeola (measles)

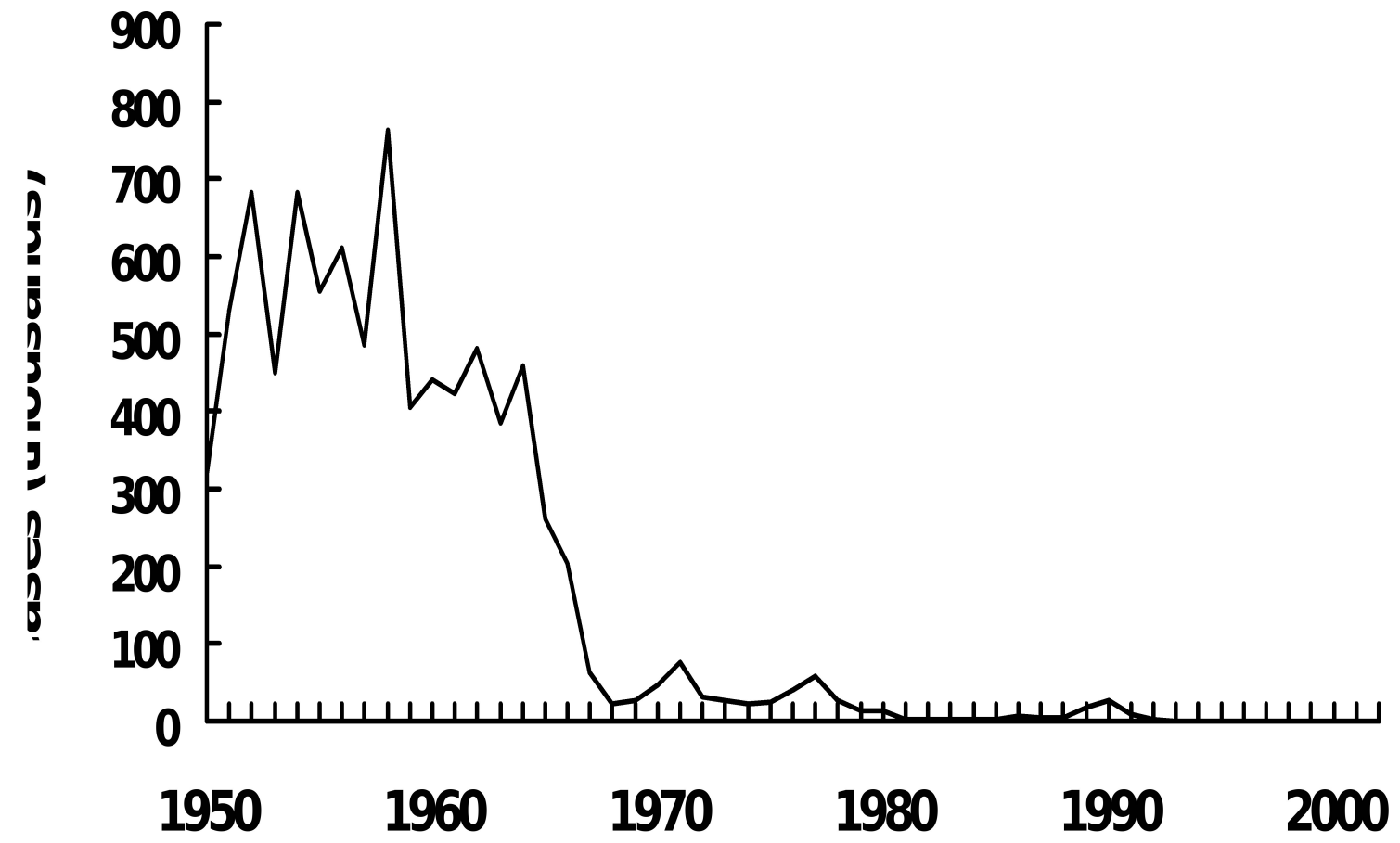


- Paramyxovirus family
- Prevaccine incidence similar to Rubella
- Transmission via direct contact
- Incubation period: 10-12 days
- Late winter – early spring

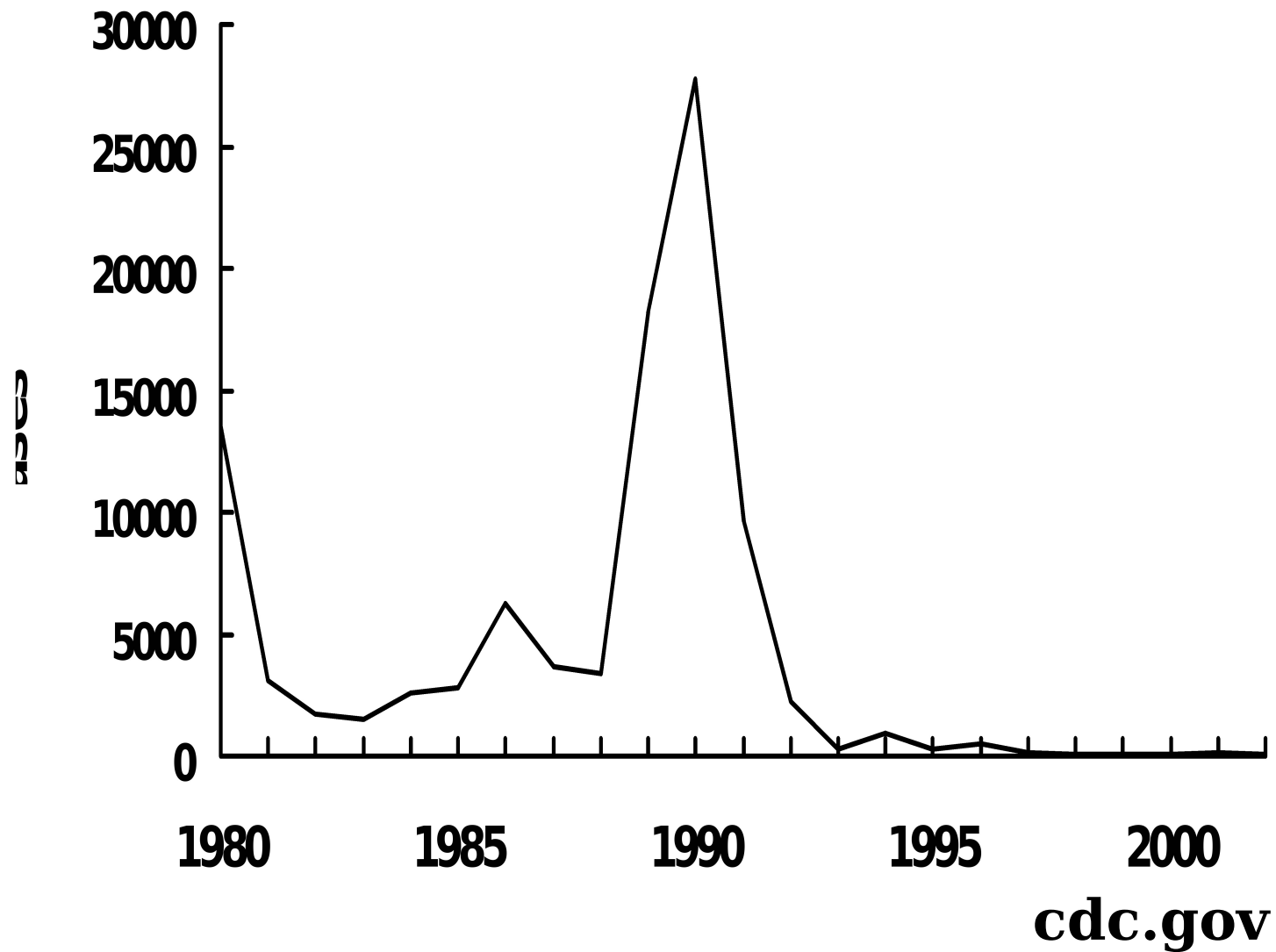
Rubeola (measles)

- Vaccine
 - Develop 1963
 - Live attenuated (CDC)
 - Current vaccine 95% effective, lifelong immunity
- Incidence
 - < 0.5 cases per 1,000,000 in 1999





cdc.gov





Measles Resurgence - United States, 1989-1991

- **Cases** **55,622**
- **Age group affected** **Children ≤ 5 yrs**
- **Hospitalizations** **$>11,000$**
- **Deaths** **123**
- **Direct medical costs** **$>\$150$ million**



Rubeola (measles)

○ Presentation

- Prodrome of high fever, malaise, anorexia followed by URI symptoms; triad of cough, coryza and conjunctivitis
- Appearance of macular-papular (confluent) rash on or about 4th febrile day
- Rash first of face/neck spreads centrifugally and inferiorly; fades in 4-6 days

Rubeola (measles)



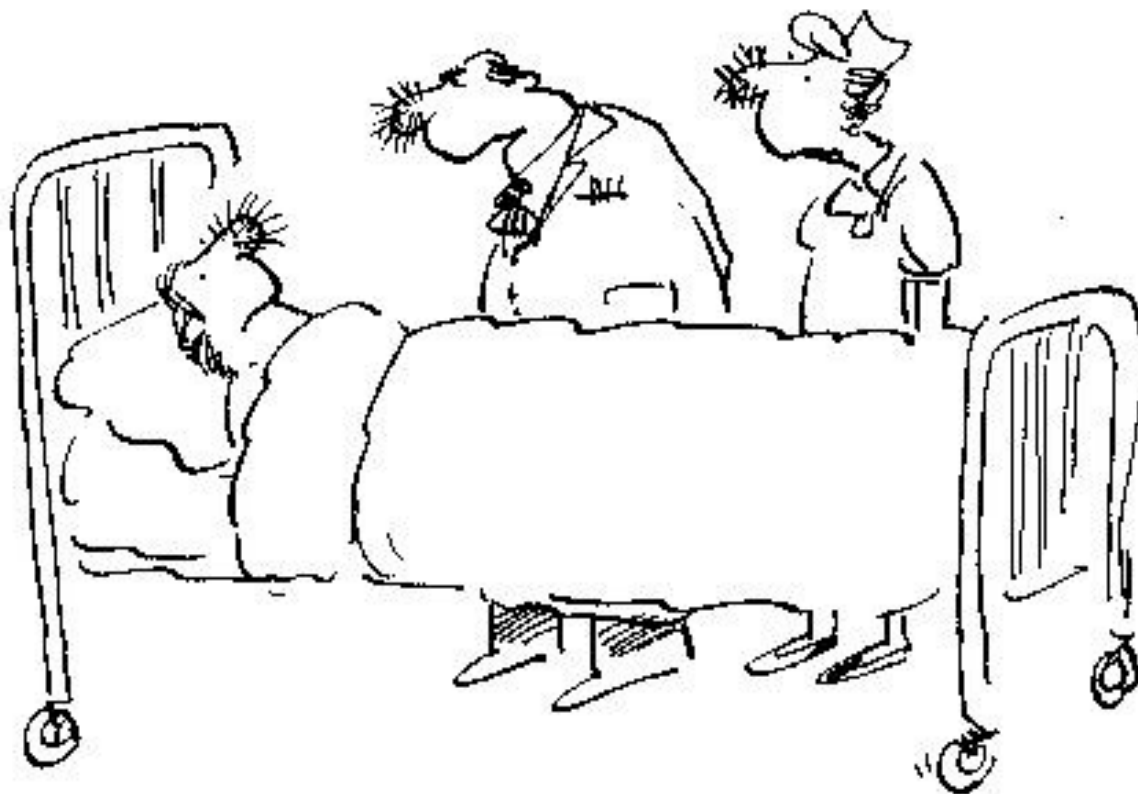
Koplick spots
pathognomonic



Rubeola (measles)

- Treatment:

- Primarily supportive
- IgG, Ribavarin and Vitamin A may have some utility



"We don't know what it is, but we do know it's contagious."

Varicella (Chicken pox)

- Varicella-zoster virus: member of herpes virus family, double stranded DNA viruses
- Transmission thru direct contact with respiratory secretions or lesion fluid or airborne spread
- Transplacental transmission
- Incubation period: 10-21 days



Varicella (Chicken pox)



○ Epidemiology:

- 90% of cases in children < 10yrs
- 5% in individuals > 15 yrs

○ Treatment:

- Supportive
- Antivirals may have role in more significant disease



Varicella Clinical Features

- **Incubation period 14-16 days (range 10-21 days)**
- **Mild prodrome for 1-2 days**
- **Generally appear first on head; most concentrated on trunk**
- **Successive crops (2-4 days) of pruritic vesicles**



Congenital Varicella Syndrome

- **Results from maternal infection during pregnancy**
- **Period of risk may extend through first 20 weeks of pregnancy**
- **Atrophy of extremity with skin scarring, low birth weight, eye and neurologic abnormalities**
- **Risk appears to be small (<2%)**



Varicella Vaccine

- **Composition** **Live virus (Oka-Merck strain)**
- **Efficacy** **95% (Range, 65%-100%)**
- **Duration of Immunity** **>7 years**
- **Schedule** **1 Dose (<13 years of age)**

May be administered simultaneously with measles-mumps-rubella (MMR) vaccine



Breakthrough Infection

- **Retrospective cohort study of 115,000 children vaccinated in 2 HMOs during January 1995 through December 1999**
- **Risk of breakthrough varicella 2.5 times higher if varicella vaccine administered <30 days following MMR**
 - Breakthrough infection: case of wild-type varicella, occurs >42 days after vaccination following exposure to wild-type virus
- **No increased risk if varicella vaccine given simultaneously or >30 days after MMR**

MMWR 2001;50(47):1058-61



Varicella Vaccine Recommendations Adolescents and Adults

- **Persons ≥ 13 years of age without history of varicella**
- **Two doses separated by 4 - 8 weeks**
- **Up to 90% of adults immune**
- **Serologic testing may be cost effective**



Varicella Vaccine Postexposure Prophylaxis

- **Varicella vaccine is recommended for use in susceptible person after exposure to varicella**
 - **70%-100% effective if given within 72 hours of exposure**
 - **not effective if >5 days but will produce immunity if not infected**

Roseola



- Aliases: exanthem subitum, roseola subitum, roseola infantalis, and sixth disease
- Etiology: Human herpes virus 6 or 7, double stranded DNA virus



Roseola

- Common worldwide
- Self-limited benign disease
- HHV-6B primary causal agent, HHV-7 produces similar syndrome in 24-36 month olds
- Epidemiology: 6 mos to 3 yrs



Roseola

○ Presentation:

- Sudden onset of fever lasting 1-8 days, average of 4 days (as high as 40.0 C)
- Mild irritability and lethargy despite fevers
- Exam may reveal cervical adenopathy (posterior cerv & occipital), tonsillar, pharyngeal and TM erythema
- 1/3 with diarrhea & vomiting



Roseola

- Presentation:

- Rash appears 2-3 days following fever
- Diffuse maculopapular eruption usually sparing face, no coalescing
- Rash resolves 1-3 days



Erythema infectiosum (fifth disease)

○ Etiology:

- Human Parvovirus B19
- Smallest human DNA virus (single strand of DNA)

○ Transmission

- Respiratory secretions
- Blood product exposure
- Transplacental
- Most infectious prior to exanthem

Erythema infectiosum (fifth disease)



- Incubation period: 4-14 days
- Epidemics amongst school age children
- Primarily children between 3 to 15 years of age

Erythema infectiosum (fifth disease)

- Presentation:
 - Mild prodrome (headache, coryza, malaise) for 2-3 days prior to rash. Arthralgias, arthritis in about 10%.
 - Fiery red macular rash “slapped cheeks” giving way to generalized lacy-reticular rash.
 - Rash typically resolves in 5-10 days although may wax & wane for weeks or months.





Erythema infectiosum (fifth disease)

- Treatment is supportive
- Vaccine is being developed but not available yet

Hand, Foot and Mouth Disease



- Etiology:
 - Coxsackie A & B
 - Self-limited non-polio enterovirus
 - Highly contagious, aerosol spread
 - Bi-modal: spring and summer
 - Children < 5 yrs

Hand, Foot and Mouth Disease

- Incubation: 4 days
- Malaise, fever, lymphadenopathy
- Oral vesicles of palate, tongue, buccal mucosa (spare gingiva) rapidly ulcerate
- Subsequent mac-pap lesions on hands & feet progress to vesicles, ulcerate then crust
- Supportive care, self-limited within 2 weeks



Honorable mention



- Pityriasis rosea
 - Etiology unknown
 - Herald patch
 - About 5% with mild prodrome
 - Ages 10-35
 - +/- pruritis
 - Generally resolves in 2-6 weeks; may persist for months

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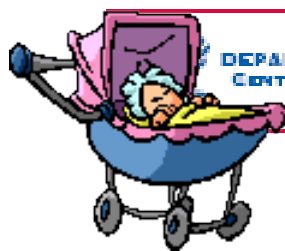
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